

Deutsches Patent- und Markenamt

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Aktenzeichen: 199 15 722.7

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Deutsches Patent- und Markenamt · 80297 München

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50667 Köln

Ihr Zeichen: H09P987

Bitte Aktenzeichen und Anmelder bei
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Ergebnis einer Druckschriftenermittlung

Auf den Antrag des
wirksam am 17. April 1999 gemäß ☒ § 43 Patentgesetz ☐ § 7 Gebrauchsmustergesetz
sind die auf den beigefügten Anlagen angegebenen öffentlichen Druckschriften ermittelt worden.
Ermittelt wurde in folgenden Patentklassen:

Klasse/Gruppe	Prüfer	Patentabt.
D04B 21/14,12	Kibler	26

Die Recherche im Deutschen Patent- und Markenamt stützt sich auf die Patentliteratur folgender Länder und Organisationen:

Deutschland (DE,DD), Österreich, Schweiz, Frankreich, Großbritannien, USA, Japan (Abstracts),
UDSSR (Abstracts), Europäisches Patentamt, WIPO.

Recherchiert wurde außerdem in folgenden Datenbanken:

Anlagen: 2-fach

Anlagen 1, 2 und 3 zur Mitteilung der ermittelten Druckschriften

Patentabteilung 11

Recherchen-Leitstelle

4 Druckschrift(en) bzw. Ablichtung(en)



P 2251
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Annahmestelle und
Nachbriefkasten
nur
Zweibrückenstraße 12

Dienstgebäude
Zweibrückenstraße 12 (Hauptgebäude)
Zweibrückenstraße 5-7 (Breitenhof)
Cinnamstraße 64
Rosenheimer Straße 116
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Schnellbahnschluß im
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Tarifverband (MüTV)

Zweibrückenstraße 12 (Hauptgebäude),
Zweibrückenstraße 5-7 (Breitenhof)
S1 - S8 Isarort

Rosenheimer Str 116 / Balanstraße 59
Alle S-Bahnen Richtung Ostbahnhof, ab Ostbahnhof Buslinien
45 / 95 / 96 / 198 Haltestelle Kustermarkpark

Cinnamstraße 64
S2 Fasangarten Bus 98 oder 99

199 15 722.7

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Anlage 1

zur Mitteilung über die ermittelten Druckschriften
gemäß § 43 des Patentgesetzes

Druckschriften:

DE 196 52 584 A1
US 44 33 493

US 44 72 086
EP 07 91 673 A2

Deutsches Patent- und Markenamt

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Anlage 2

zur Mitteilung der ermittelten Druckschriften

Aktenzeichen

199 15 722.7

Erläuterungen zu den ermittelten Druckschriften:

1	2		3
Kate- gorie	Ermittelte Druckschriften/Erläuterungen		Betrifft Anspruch
A,D	US	44 72 086	
A	DE	196 52 584 A1	
A	US	44 33 493	
A	EP	07 91 673 A2	

Hinweise zur Mitteilung (Vordruck P 2251)

Eine Gewähr für die Vollständigkeit der Ermittlung wird nicht geleistet (§ 43 Abs. 7 Patentgesetz bzw. § 7 Abs. 2 Gebrauchsmustergesetz i.V.m. § 43 Abs. 7 Satz 1 Patentgesetz).

Die angegebene Patentliteratur kann in den Ausgehallen des Deutschen Patent- und Markenamts, 80331 München, Zweibrückenstraße 12, oder 10969 Berlin, Gitschiner Str. 97 eingesehen werden; deutsche Patentschriften, Auslegeschriften und Offenlegungsschriften auch in den Patentinformationszentren. Ein Verzeichnis über diese Patentinformationszentren kann auf Wunsch vom Deutschen Patent- und Markenamt sowie von einigen Privatfirmen bezogen werden.

Erklärungen zur Anlage 2 (Vordruck P 2253)

Spalte 1: Kategorie

Es bedeutet:

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A: Allgemein zum Stand der Technik, technologischer Hintergrund

O: Nicht-schriftliche Offenbarung, z.B. ein in einer nachveröffentlichten Druckschrift abgedruckter Vortrag der vor dem Anmelde- oder Prioritätstag öffentlich gehalten wurde

P: Im Prioritätsintervall veröffentlichte Druckschriften

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E: Ältere Anmeldungen gemäß § 3 Abs. 2 PatG (bei Recherchen nach § 43 PatG); ältere Patentanmeldungen oder ältere Gebrauchsmuster gemäß § 15 GbmG (bei Recherchen nach § 7 GbmG)

D: Druckschriften, die bereits in der Patentanmeldung genannt sind

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Spalte 2: Ermittelte Druckschriften / Erläuterungen

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nr: Nicht recherchiert, da allgemein bekannter Stand der Technik, oder nicht recherchierbar

=: Druckschriften, die auf dieselbe Ursprungsanmeldung zurückgehen ("Patentfamilien") oder auf die sich Referate oder Abstracts beziehen.

"-": Nichts ermittelt

Spalte 3: Betroffene Ansprüche

Hier sind die Ansprüche unter Zuordnung zu den in Spalte 2 genannten relevanten Stellen angegeben.

IN THE UNITED STATES PATENT AND TRADE MARK OFFICE

VERIFICATION OF TRANSLATION

I, Michael Wallace Richard Turner, Bachelor of Arts, Chartered Patent Attorney, European Patent Attorney, of 1 Horsefair Mews, Romsey, Hampshire SO51 8JG, England, do hereby declare that I am conversant with the English and German languages and that I am a competent translator thereof;

I verify that the attached English translation is a true and correct translation made by me of a certified copy in the German language of German patent application No 199 15 722.7;

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: May 2, 2002

Michael Wallace Richard Turner
M W R Turner

FEDERAL REPUBLIC OF GERMANY

C E R T I F I C A T E

Huesker Synthetic GmbH & Co, of Gescher/Germany

filed a patent application entitled:

'Textile mesh structure, in particular a geomesh'
at the German Patent and Trade Mark Office on 8th April 1999.

The attached documents are a true and correct copy of the original documents of this patent application.

The application has provisionally received the symbol D 04 B and E 02 D of the International Patent Classification in the German Patent and Trade Mark Office.

S E A L

MUNICH 22nd February 2000

The German Patent and
Trade Mark Office
The President

represented by
(signed)
Waasmaier

File No 199 15 722.7

Textile mesh structure, in particular a geomesh

The invention relates to a textile mesh structure, in particular a geomesh, comprising linearly extending warp threads and weft threads which extend linearly substantially at a right angle to the warp threads and which are joined to the warp threads by means of fixing threads which are applied by warp knitting and the meshes of which extend around the warp threads over the entire length and the weft threads in the region of the intersections, wherein the warp threads and the weft threads are arranged individually or in groups at relatively large spacings which produce the internal widths of the mesh.

Textile mesh structures of that kind are known from US patents Nos 4 472 086 and 4 540 311. The linearly extending and load-carrying warp threads and weft threads of the mesh preferably comprise high-module polyester yarns or other high-strength filament yarns, for example of polyamide. The fixing thread which is knitted onto the structure and which joins the warp threads to the weft threads in the form of knitted meshes or tricot meshes is considerably weaker in terms of its thread strength than the warp threads and the weft threads.

If necessary that mesh structure after manufacture thereof is encased with a soft plastic material, for example PVC, with a bitumen emulsion or with latex.

The object of the invention is to provide a better join between the warp threads and the weft threads without requiring additional fixing threads or stronger fixing threads.

In accordance with the invention that object is attained in that in the regions in which the weft threads cross the warp threads the lengths of the meshes of the fixing threads are markedly shorter than in the regions which are therebetween.

Advantageously, the length of the meshes of the fixing threads in the regions in which the weft threads cross the warp threads is at least 30% shorter than the length of the meshes between the intersection regions. That measure provides for a considerable saving in terms of
5 fixing threads or fixing yarn without any fear of an adverse influence on the strength of the mesh structure. The manufacturing speed of those textile mesh structures is also increased.

Further features of the invention are set forth in the claims.

An embodiment of the invention is described in greater detail in the
10 description hereinafter with reference to the drawings in which:

Figure 1 is a diagrammatic view of the textile mesh structure, in accordance with the invention,

Figure 2 is a view on an enlarged scale of a register round or repeat of the mesh structure from one side, and

15 Figure 3 is a view on an enlarged scale of a register round or repeat of the mesh structure from the other side.

The textile mesh structure shown in Figure 1 is composed of linearly extending warp threads 1 and weft threads 2 which extend at a right angle to the warp threads 1. Each three warp threads 1 are combined to form a respective warp thread group 9. In addition each two weft threads
20 2 are combined to form a respective weft thread group 11. The weft threads 2 are joined to the warp threads 1 by means of fixing threads 3 which are knitted thereon. The meshes of the fixing threads 3 extend in a zig-zag configuration over the warp threads 1. The warp thread groups 9
25 and the weft thread groups 11 are arranged at relatively large spacings which afford the internal widths 5 of the mesh 6.

In accordance with the invention, in the regions 4 in which the weft threads 2 cross the warp threads 1, the lengths 8' of the meshes 7' of the fixing threads 3 are markedly shorter than in the regions therebetween of
30 the mesh structure.

As Figures 2 and 3 in particular show the lengths 8' of the meshes 7' or the threads loops of the fixing threads 3 in the regions 4 in which the weft threads 2 intersect the warp threads 1 are at least 30% and preferably 50% shorter than the lengths 8 of the meshes 7 between the intersection regions 4. In the intersection regions 4, a mesh 7' of the fixing threads 3 can be associated with each weft thread 2 per warp thread 1.

So that the warp threads 1 are secured to prevent lateral displacement thereof, a joining yarn 10 is applied by a Raschel knitting procedure, for holding the warp threads 1 of a warp thread group 9 together or securing them to prevent lateral displacement. That joining yarn 10 can either extend around the warp threads 1 of a warp thread group 9 in a zig-zag configuration or, as shown in Figures 2 and 3, the fixing threads 3 of each warp thread group 9. It is however also possible for the warp threads 1 of a warp thread group 9 to be secured to prevent lateral displacement by the fixing threads 3 of a warp thread group 9 changing by tricot thread laying from one warp thread 1 of a warp thread group 9 to the adjacent warp thread 1 of the same warp thread group 9.

The textile mesh structure according to the invention can also be combined in known manner with a non-woven material layer.

List of references

- 1 warp threads
- 2 weft threads
- 3 fixing threads
- 5 4 intersection region
- 5 internal width
- 6 mesh structure
- 7 mesh
- 7' mesh in the region of the intersection 4
- 10 8 length of the mesh 7
- 8' length of the mesh 7'
- 9 warp thread group
- 10 joining yarn
- 11 weft thread group

CLAIMS

1. A textile mesh structure, in particular a geomesh, comprising linearly extending warp threads (1) and weft threads (2) which extend linearly substantially at a right angle to the warp threads (1) and which are joined to the warp threads (1) by means of fixing threads (3) which are applied by warp knitting and the meshes of which extend around the warp threads (1) over the entire length and the weft threads (2) in the region of the intersections (4), wherein the warp threads (1) and the weft threads (2) are arranged individually or in groups at relatively large spacings which produce the internal widths (5) of the mesh (6), characterised in that in the regions in which the weft threads (2) cross the warp threads (1) the lengths of the meshes (7) of the fixing threads (3) are markedly shorter than in the regions of the mesh structure, which are therebetween.

2. A mesh structure according to claim 1 characterised in that the lengths of the meshes (7') of the fixing threads (3) in the regions (4) in which the weft threads (2) cross the warp threads (1) are at least 50% shorter than the lengths of the meshes (7) between the intersection regions (4).

3. A mesh structure according to claim 1 or claim 2 characterised in that in the intersection region the lengths of the meshes (7') of the fixing threads (3) are so short that a mesh (7') is associated with each weft thread (2) of a weft thread group (11).

4. A mesh structure according to one of claims 1 to 3 characterised in that associated with each warp thread (1) is a fixing thread (3) which embraces the warp thread (1) in the form of warp meshes (7, 7').

5. A mesh structure with warp thread groups (9) formed from at least two warp threads (1) extending in closely mutually juxtaposed relationship, according to claim 1 or claim 2, characterised in that the warp threads (1) of a warp thread group (9) are fixed to prevent lateral displacement by means of a joining thread (10) extending in a zig-zag configuration.

6. A mesh structure according to claim 1 or claim 2 characterised in that the fixing threads (3) of a warp thread group (9), which are associated with each warp thread (1), are fixed to prevent lateral displacement by means of a joining thread (10) extending in a zig-zag configuration.

7. A mesh structure according to one of claims 1 to 6 characterised in that the joining threads (10) or fixing threads (3) which are knitted on or applied by Raschel knitting join the warp and weft threads of the mesh to a non-woven material layer.